

1 ABSTRACT OF THE DISCLOSURE

2 A method of forming a crystalline phase material includes,
3 a) providing a stress inducing material within or operatively adjacent a
4 crystalline material of a first crystalline phase; and b) annealing the
5 crystalline material of the first crystalline phase under conditions
6 effective to transform it to a second crystalline phase. The stress
7 inducing material preferably induces compressive stress within the first
8 crystalline phase during the anneal to the second crystalline phase to
9 lower the required activation energy to produce a more dense second
10 crystalline phase. Example compressive stress inducing layers include
11 SiO₂ and Si₃N₄, while example stress inducing materials for providing
12 into layers are Ge, W and Co. Where the compressive stress inducing
13 material is provided on the same side of a wafer over which the
14 crystalline phase material is provided, it is provided to have a thermal
15 coefficient of expansion which is less than the first phase crystalline
16 material. Where the compressive stress inducing material is provided
17 on the opposite side of a wafer over which the crystalline phase
18 material is provided, it is provided to have a thermal coefficient of
19 expansion which is greater than the first phase crystalline material.
20 Example and preferred crystalline phase materials having two phases are
21 refractory metal silicides, such as TiSi_x.

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